## REMARKS/ARGUMENTS

### I. Status of Claims

Claims 1-10 are pending of which claims 1 and 6 are independent. Claims 1-10 have been amended.

### II. Rejections under 35 U.S.C. §102(b)

Claims 1 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,553,076 to Behtash et al. (hereinafter Behtash). Applicants respectfully traverse the rejection.

Before discussing the differences between the cited reference and the present application, it is believed to be beneficial to first give a brief overview of the Applicants' disclosure. Next generation Code Division Multiple Access (CDMA) mobile communication systems include IMT-2000 system, which is a synchronous system standardized in North America, and UMTS system, which is an asynchronous system prevalent in Europe. A synchronous CDMA system and an asynchronous CDMA system have their own different ways of generating synchronization codes used for synchronous operations. A User Equipment (UE) operating in both synchronous and asynchronous systems necessitates having additional hardware for acquiring synchronization codes for both a synchronous scheme and an asynchronous scheme. In addition, it is known that a reduction of power consumption can result from a quick-paging scheme when the UE is in standby mode. The quick paging scheme, nonetheless, requires the UE to be equipped with additional code generators for identifying both on-line and off-line transactions.

Combining multiple synchronization acquisition hardware devices may enable a UE to acquire synchronization codes for both synchronous and asynchronous systems as well as facilitate the quick paging scheme. However, such combining will inevitably bring about an increase in hardware size and cost. The claimed invention is designed to obviate the need for such combining. The claimed invention, instead, employs a simple hardware structure to achieve aforementioned functionalities with

respect to acquiring synchronization codes. Specifically, the claimed invention accomplishes the synchronous acquisition in both synchronous and asynchronous modes by using one hardware apparatus, and accomplishes both on-line and off-line synchronous acquisitions in the synchronous system through the use of one code generator.

Claim 1 recites an apparatus for synchronization acquisition in a User Equipment (UE) communicating with any one of a first Node B in a first system mode operating in a synchronous scheme and a second Node B in a second system mode operating in an asynchronous scheme in a mobile communication system. The apparatus comprises:

> a controller for determining a system mode of a current Node B to which the UE belongs between the first system mode of the first Node B and the second system mode of the second Node B, and generating a system mode select signal in order to select the determined system mode; and
>
> a code generator for generating a synchronization code used in the determined system mode in response to the system mode select signal.

Behtash, however, fails to disclose, teach, or suggest the apparatus for synchronization acquisition in a UE as claimed. Specifically, unlike the claimed invention which is generally related to synchronization code generation hardware, Behtash is directed to a very different purpose of establishing a protocol for wireless local area network communication between a base station and a plurality of wireless terminals so that both asynchronous communication and time-based services can be supported. See abstract. Specifically, the protocol, which is based upon channel reservation requests by active wireless terminals, serves to resolve contentions among wireless terminals and enable a wireless terminal to grant authorization, both concerning asynchronous communication and time-based services. See abstract, cols. 2, lines 31-35 and col. 10, lines 29-34. However, none of the aforementioned disclosure concerning the protocol has anything to do with hardware in a UE for

generating synchronization codes for synchronous and asynchronous systems in accordance to the recitations of claim 1, namely a controller and a code generator.

The Examiner argues that PCU 80 (protocol control unit) and CLU 72 (control logic unit) collectively read on the claimed controller and that PN generator 62 reads on the claimed code generator. Applicants respectfully disagree with the Examiner's understanding on both accounts. With respect to PCU80 and CLU 72, PCU 80 merely implements the protocol as disclosed in Behtash (see col. 4, lines 6-11), and CLU72 merely controls the power to a wireless terminal based on received status signal generated by Rcv Block 70 (see col. 5:64 – col. 6:15). Hence, neither of PCU 80 and CLU 72 has any relevance to determining a system mode and generating a system mode select signal, as recited in claim 1 concerning the controller. Accordingly, PCU 80 and CLU 72, collectively, do not disclose, teach, or suggest a controller for determining a system mode of a current Node B to which the UE belongs between the first system mode of the first Node B and the second system mode of the second Node B, and generating a system mode select signal in order to select the determined system mode, as claimed.

Further, PN generator 62 is disclosed to be nothing more than a conventional Pseudo Noise generator that merely supplies PN code. See col. 4, lines 47-51. PN generator 62, however, does not disclose, teach, or suggest a code generator as claimed. Specifically, with respect to PN generator 62, no system mode select signal is disclosed to cause PN generator 62 to generate a synchronization code used in the determined system mode. Accordingly, PN generator 62 does not disclose, teach, or suggest a code generator for generating a synchronization code used in the determined system mode in response to the system mode select signal, as claimed.

Consequently, contrary to the Examiner's understanding concerning Behtash, Behtash does not disclose, teach, or suggest any of the controller and the code generator recited claim 1, and thus does not anticipate claim 1 since it does not disclose, teach, or suggest each and every element recited in claim 1. Accordingly,

reconsideration and withdrawal of the anticipatory rejection of claim 1 is respectfully requested.

Method claim 6 contains similar recitations to claim 1, and therefore is also believed to be allowable over Behtash for at least the same reason discussed above in connection with claim 1. Accordingly, reconsideration and withdrawal of the anticipatory rejection of claim 6 is respectfully requested.

## III. Rejections under 35 U.S.C. §103 (a)

Claims 2 – 4 and 7 – 9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Behtash in view of U.S. Publication No. 2002/0032692, to Suzuki et al. (hereinafter Suzuki).

Claims 5 and 10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Behtash in view of U.S. Publication No. 2002/0031169 to Lipponen et al. (hereinafter Lipponen).

### A. Claims 2-4 and 7-9

Claims 2 – 4 and 7 – 9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Behtash in view of U.S. Publication No. 2002/0032692, to Suzuki et al. (hereinafter Suzuki).

Claims 2-4 and 7-9 are dependent from independent claims 1 and 6 respectively, and thus inherit all the claim limitations from the independent claims. The secondary reference Suzuki is merely introduced for the purpose of purportedly disclosing additional features disclosed in the dependent claims. Suzuki, however, is directed to a workflow management control system, which is very distant from the claimed invention. Thus, Suzuki does not overcome the deficiency of Behtash with respect to claims 1 and 6.

Hence, claims 1 and 6 are allowable over Behtash and Suzuki. Accordingly, claims 2-4 and 7-9 are also allowable over Behtash and Suzuki by virtue of their dependence from claims 1 and 6, and Applicants need not further discuss Suzuki with respect to the patentability of claims 2-4 and 7-9. Accordingly, reconsideration and withdrawal of the rejection of claims 2-4 and 7-9 are respectfully requested.

**B. Claims 5 and 10**

Claims 5 and 10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Behtash in view of U.S. Publication No. 2002/0031169 to Lipponen et al., (hereinafter Lipponen).

Claims 5 and 10 are dependent from independent claims 1 and 6 respectively, and thus inherit all the claim limitation from the independent claims. The secondary reference Lipponen is merely introduced for the purpose of purportedly disclosing additional features disclosed in claims 5 and 10. Lipponen is related to a code generator for generating spreading codes and scrambling codes. Lippon, however, does not disclose, teach, or suggest the features recited in claim 1 with respect to a controller for determining a system mode and generating a system mode select signal and a code generator for generating a synchronization code used in the determined system mode in response to the system mode select signal. Thus, Lipponen does not overcome the deficiency of Behtash with respect to claims 1 and 6. Hence, claims 1 and 6 are allowable over Behtash and Lipponen. Accordingly, claims 5 and 10 are also allowable over Behtash and Lipponen by virtue of their respective dependence from claims 1 and 6, without regard to the alleged merits concerning Lipponen.

Further, claims 5 and 10 are also believed to be allowable over Lipponen for their own patentable features. Specifically, claim 5 further recites:

> a register unit having a second number of registers necessary for generating a synchronization code used in the second system mode, the register unit operating such that a feedback value is input to a first number of shift registers necessary for generating a

> synchronization code used in the first system mode or to a second number of shift registers necessary for generating a synchronization code used in the second system mode, according to a predetermined control generated by the system mode select signal corresponding to the determined system mode;
>
> a synchronization code mask unit for masking a mask value for generating the synchronization code used in the determined system mode, to a shift register value according to the predetermined control; and
>
> a feedback controller for determining a register feedback tap of the register unit for generating the synchronization code used in the determined system mode according to the predetermined control, and inputting the feedback value to a shift register corresponding to the determined system mode.

Claim 10 contains similar recitations.

Unlike the claimed invention, which is related to hardware in a UE for generating synchronization codes for synchronous and asynchronous systems, Lipponen is primarily directed to a calculation scheme using a linear feedback shift register (LFSR) to generate spread codes and scrambling codes without resorting to pre-stored spread codes and thereby save memory space over conventional methods. See abstract, paragraphs [0021], [0024] and [0053]). As a result, Lipponen fails to disclose, teach, or suggest any of the register unit, the synchronization code mask, and the feedback controller, as claimed in claim 5.

The Examiner points to the LFSR, shown in Fig 2C of Lipponen, as disclosing the register unit as claimed. The LFSR, however, is very different from each of shift registers 940 and 935, which are embodiments of the register unit as claimed, shown in Fig. 9 of the present application. Specifically, each of shift registers 940 and 935 is shown having a feedback value inputted to a first number of shift registers necessary for generating a synchronization code used in the first system mode or to a second number of shift registers necessary for generating a synchronization code used in the second system mode, as claimed. Additionally, A MODE_SEL signal, which

corresponds to the system mode select signal as claimed, is shown to control whether the feedback value is inputted to a first number of shift registers or to a second number of shift registers, so as to determine which synchronization code is to be generated.

In contrast, the LFSR, as shown in Fig. 2C of Lipponen, does not teach the features discussed above. Specifically, with respect to the LFSR, a feedback value only goes into one element (element 272) of the LFSR. Furthermore, there is no showing of a system mode select signal, similar to the MODE_SEL signal in Fig. 9 of the present application, that are used to control whether a first number of shift registers or a second number of shift registers are to be used for generating a desired synchronization code. Consequently, the LFSR of Lipponen does not disclose, teach, or suggest the register unit operating such that a feedback value is input to a **first number of shift registers** necessary for generating a synchronization code used in the first system mode or to a **second number of shift registers** necessary for generating a synchronization code used in the second system mode, according to a predetermined control generated by **the system mode select signal** corresponding to the determined system mode, as claimed.

Additionally, Lipponen also fails to disclose, teach, or suggest either of the synchronization code mask and the feedback controller as claimed as well. Upon a careful study of Lipponen, Applicants respectfully submit that nowhere does Lipponen disclose, teach or suggest a feedback controller for **determining a register feedback tap** of the register unit for generating the synchronization code used in the determined system mode according to the predetermined control, and **inputting the feedback value** to a shift register corresponding to the determined system mode, as claimed. Nor does Lipponen disclose, teach or suggest a synchronization code mask unit for **masking a mask value for generating the synchronization code used in the determined system mode**, to a shift register value **according to the predetermined control**, as claimed. Paragraphs [0056]-[0059], upon which the Examiner relies as allegedly disclosing the two elements, at best discloses a scheme in which the value of

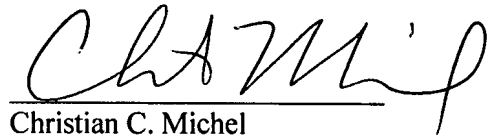
the LFSR can be generated from a previous state and a pre-stored mask register. This disclosure, however, has little relevance to the specifics concerning the feedback controller and the synchronization code mask unit as claimed.

Accordingly, it is respectfully submitted that Lipponen fails to disclose, teach, or suggest the additional features contained in dependent claims 5 and 10, even without regard to the fact that Lipponen itself does not cure the deficiency of Behtash with respect to independent claim 1. Accordingly, claims 5 and 10 are allowable over Behtash in view of Lipponen, and reconsideration and withdrawal of the rejection of claims 5 and 10 is therefore respectfully requested.

## IV. Conclusion

In view of the above, it is believed that the application is in condition for allowance and notice to this effect is respectfully requested. Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the telephone number indicated below.

Respectfully Submitted,



Christian C. Michel
Attorney for Applicant
Reg. No. 46,300

Roylance, Abrams, Berdo & Goodman, L.L.P.
1300 19th Street, N.W., Suite 600
Washington, D.C. 20036
(202) 659-9076

Dated: July 26, 2007